AMENDMENT(S) TO THE SPECIFICATION

Please add the following paragraph beginning at page 1, line 5::

CROSS-REFERENCE TO RELATED APPLICATIONS

This is a continuation of U.S. Patent Application Serial Number 09/533,366, filed March 22, 2000, which is a divisional of U.S. Patent Application Serial Number 08/974,531, filed November 19, 1997 of in the name of Katsuichi Imaizumi et al. and entitled FLUORESCENT ENDOSCOPE SYSTEM ENABLING SIMULTANEOUS ACHIEVEMENT OF NORMAL LIGHT OBSERVATION BASED ON REFLECTED LIGHT AND FLUORESCENCE OBSERVATION BASED ON LIGHT WITH WAVELENGTHS IN INFRARED SPECTRUM–.

Please replace the paragraph beginning at page 1, line 26, with the following rewritten paragraph:

~~By the way~~ Recently, a modality in which a fluorescent substance having an affinity for a lesion such as a carcinoma is administered to a subject to be examined in advance, excitation light for exciting the fluorescent substance is irradiated, and fluorescence emanating from the fluorescent substance is detected ~~has attracted attention recently~~.

Please replace the paragraph beginning at page 2, line 6, with the following rewritten paragraph:

According to the modality, since intense fluorescence is radiated from a lesion, the presence of the lesion can be judged from the brightness of a fluorescence image. A system as adopting the modality is, for example, a system, disclosed in Japanese Unexamined Patent Publication No. 59-40830, for detecting fluorescence emanating from hematoporphyrin that is a fluorescent substance.

Please replace the paragraph beginning at page 2, line 13, with the following rewritten paragraph:

In the system disclosed in Japanese Unexamined Patent Publication No. 59-40830, control is ~~given~~ provided so that pulsed laser light for excitation and white light for normal

observation can be irradiated selectively. Japanese Unexamined Patent Publication No. 7-59783 has disclosed a system enabling observation of fluorescent substances such as chlorin and pheophorbide. In the system disclosed in Japanese Unexamined Patent Publication No. 7-59783, light suitable for exciting a fluorescent substance and light suitable for normal light observation (white light) are irradiated while being switched by a rotary filter.

Please replace the paragraph beginning at page 2, line 24, with the following rewritten paragraph:

~~For~~ Prior methods for exciting fluorescent substances ~~that have been employed in the past~~ is irradiated, light with relatively short wavelengths of about 405 nm is irradiated. When light with the wavelengths is irradiated to a living tissue, the living tissue itself fluoresces. Unless an apparatus exhibiting high spectroscopic precision such as a spectrometer is employed, it is hard to distinguish self-fluorescence from fluorescence emanating from a fluorescent substance.

Please replace the paragraph beginning at page 3, line 6, with the following rewritten paragraph:

~~Moreover, the~~ The transmittance of light with short wavelengths relative to a living tissue is so poor that a system using hematoporphyrin to be excited by light with short wavelengths may miss the presence of a substance fluorescing in a deep subcutaneous region.

Please replace the paragraph beginning at page 3, line 11, with the following rewritten paragraph:

~~Moreover, in~~ In the prior art, excitation light and white light are irradiated while being switched temporally. Consequently, during irradiation of excitation light, a fluorescence image alone can be produced. During irradiation of while light, a normal light image alone can be produced. There is a large difference in time between the fluorescence image and normal image.

Please replace the paragraph beginning at page 4, line 10, with the following rewritten paragraph:

A fluorescent endoscope system comprises: an endoscope having an elongated insertional part capable of being inserted into a living body; a light source means for simultaneously irradiating excitation light with wavelengths in a first infrared spectrum, which causes a fluorescent substance to be administered to a living tissue to fluoresce, and light with wavelengths in the visible spectrum; a separating means for separating fluorescence with wavelengths in a second infrared spectrum including at least part of the wavelengths of the fluorescent substance and different from the first infrared spectrum, from light stemming from the living tissue; a first imaging means for forming an image depicted by the fluorescence separated by the separating means; and a second imaging means for forming an image depicted by light with wavelengths in the visible spectrum. Owing to these components, self-fluorescence can be cut off together with light with wavelengths in the infrared spectrum that are longer than the wavelengths of the self-fluorescence. Fluorescence observation of ~~observing~~ an object using a fluorescent substance that is characteristic of good transmittance and ready accumulation in a lesion, such as, an antibody labeled by indocyanine green can be carried out. Fluorescence emanating form a lesion in a deep subcutaneous region in which the fluorescent substance is accumulated can be observed but will not be missed.

Please replace the paragraph beginning at page 13, line 15, with the following rewritten paragraph:

Light components with wavelengths in the spectrum ranging from the visible spectrum to the infrared spectrum is extracted from light emanating from the lamp 11 by the band pass filter [[2]] 12, and supplied to the light guide connector 10 of the endoscope 2A via the illumination light diaphragm 13 and the condenser 14. The light is then emitted from a distal end of the light guide fiber locked in a distal part 15 of the insertional part 8 to a living tissue 17 in a body cavity through an illumination lens 16 attached to an illumination window. Thus, the living tissue 17 is illuminated with light with wavelengths in the visible spectrum and with excitation light with wavelengths in the infrared spectrum.

Please replace the paragraph beginning at page 14, line 2, with the following rewritten paragraph:

The distal part 15 has an observation window adjacently to the illumination window. An objective lens 18 is attached to the observation window. Reflected light and fluorescence stemming from the illustrated living tissue 17 fall on the objective lens, whereby images are formed at an image formation position of the objective lens. ~~At~~ Location at the image formation position is, the distal end of an image guide fiber 19 serving as a transmitting means for transmitting optical images ~~is located~~. Optical images formed on the distal end are transmitted to a back end of the image guide fiber.

Please replace the paragraph beginning at page 47, line 5, with the following rewritten paragraph:

In this embodiment, an electronic endoscope having an imaging means is realized with a camera-mounted endoscope constructed by mounting the freely detachable camera head [[4]] 4A on the eyepiece unit of the optical endoscope 2D.

Please replace the paragraph beginning at page 47, line 9, with the following rewritten paragraph:

The endoscope 2D has the elongated flexible insertional part 8 to be inserted into a body cavity. The light guide fiber 9 over which illumination light is propagated and the image guide fiber 19 over which light stemming from a living tissue is propagated are run through the insertional part 8. A light guide connector 10 located at an incident end of the light guide fiber 9 placed near an operator's hand is freely detachably attached to the light source apparatus 3D. The camera head ~~4D~~ 4A is freely detachably attached to the back end of the image guide fiber 19.

Please replace the paragraph beginning at page 47, line 18, with the following rewritten paragraph:

The light source apparatus 3D includes a lamp 61 for radiating light containing visible light, an infrared light cutoff filter 61 located on the path of illumination light radiated from the

lamp [[61]] 62 for restricting the wavelengths of transmitted light, an infrared laser 63 for radiating laser light with wavelengths in the infrared spectrum, a mirror 64 for transmitting light with wavelengths in the visible spectrum and reflecting light with wavelengths in the infrared spectrum, an illumination light diaphragm 65 for restricting an amount of light, a condenser for concentrating light, and a light emission control circuit 67 for controlling amounts of light emitted form the lamp 61 and infrared laser 63.

Please replace the paragraph beginning at page 71, line 19, with the following rewritten paragraph:

The sizes of the normal light image 6e and fluorescence image 6d to be displayed in normal light/fluorescence dual-screen observation are not limited to the same size adopted in this embodiment. Alternatively, the fluoroscence image 6d may be displayed in a smaller size as a ~~chile~~ child screen, the normal light image 6e may be displayed in a smaller size as a child screen, or the images may be able to be switched.

Please replace the paragraph beginning at page 75, line 8, with the following rewritten paragraph:

Fig. 35 shows the characteristics of the red, green, and blue transmission filters ~~13a, 13b, and 13c~~ 113a, 113b, and 113c concerning transmission. According to the spectroscopic characteristics of transmission, the red, green and blue transmission filters ~~13a, 13b, and 13c~~ 113a, 113b, and 113c transmit light with wavelengths permitting excitation of an antibody labeled by ICG as well as red, green, and blue light rays.

Please replace the paragraph beginning at page 76, line 3, with the following rewritten paragraph:

The distal part 117 has an observation window adjacently to the illumination window. An objective lens 120 is attached to the observation window. Reflected light and fluorescence stemming from the illuminated examined object 119 are converged to form images at an image formation position. A CCD 121 is placed as a solid-state imaging device at the image formation

position. The CCD 121 photoelectrically converts the converged light. The objective lens system 120 and CCD 121 constitute an imaging means.

Please replace the paragraph beginning at page 76, line 12, with the following rewritten paragraph:

In this embodiment, a filter diaphragm 122 exhibiting the characteristic of transmission dependent on specified wavelengths is placed as a diaphragm means for restricting an amount of incident light on an optical path linking the objective lens system 120 and CCD 121. Moreover, an excitation light cutoff filter 123 for cutting off excitation light is also placed.

Please replace the paragraph beginning at page 102, line 7, with the following rewritten paragraph:

A fluorescent endoscope system 101C of the ninth embodiment shown in Fig. 48 is different from the fluorescent endoscope system 101A shown in Fig. 31 in points that an electronic endoscope 102C adopts a CCD 151 capable of varying an amplification factor internally in place of the CCD 121 employed in the electronic endoscope 102A, and adopts a diaphragm 152 for restricting an amount of transmitted light in place of the filter diaphragm 122, that a light source apparatus 103C includes a lamp light emission control circuit 153 for controlling glowing of a lamp 110 in addition to the components of the light source apparatus 103A, and that a processor 104C includes a CCD drive circuit 154 for controlling the CCD 151 in addition to the components of the processor 104A.

Please replace the paragraph beginning at page 104, line 24, with the following rewritten paragraph:

In normal light observation, as shown in Fig. 49, the lamp light emission control circuit 153 supplies a pulsating current of, for example, 18 A to the lamp. ~~the~~ The lamp 110 glows synchronously with the rotation of the RGB rotary filter 113.

Please replace the paragraph beginning at page 108, line 25, with the following rewritten paragraph:

A digital signal output from the image display control circuit 131 is input to the D/A conversion circuit 132 and converted into an analog signal. The analog signal is then output to the monitor [[5]] 105. The automatic light adjustment circuit 133 sends a signal for use in controlling the illumination light diaphragm 112 so that illumination light of proper brightness can be irradiated. The timing control circuit 134 synchronizes and controls rotations of the rotary filters, drive of the CCD, processing of various video signals, and glowing of the lamp.